S P E C I F I C A T I O N

CUSHIONING ELEMENT FOR MATTRESSES, PILLOWS AND THE LIKE

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FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to a cushioning element for mattresses, pillows and the like. In particular, it pertains to a cushioning element such as a slab for mattresses or pillows made of latex and to be used in beds, sofas, etc.

It is known that cushioning elements, such as slabs for mattresses made of latex, consist of a single body having a plate-like conformation with a substantially parallelepiped extension; the mattress has an upper surface set to support a user's body and a lower surface designed to rest on the bed frame.

These mattresses are obtained from conversion of a raw material (latex) from a liquid state to a foamy state and to a solid state by a final vulcanization step.

By virtue of the particular elastic properties of the material of which the mattress is made, the latter is able to model itself in conformity with the user's shape and weight. In this way, the user's prominent and heavy body parts sink into the upper surface of the mattress in an attempt to keep the user's backbone in a correct horizontal posture.

Likewise, pillows are made with the same techniques used for mattresses and perform the same tasks.

In fact, pillows model themselves based on the weight and conformation of the user's skull keeping the cervical vertebrae to a correct posture.

Also known are pillows and mattresses having a series of blind holes at the respective lower and/or upper surfaces.

These holes have a frustoconical conformation tapering inwardly of the mattress or pillow, to obtain a constantly increasing stiffness as the user's weight

increases.

In addition, to differentiate the regions of greater density, i.e. the mattress or pillow regions where greater weight is exerted by the user (regions corresponding to the user's shoulders and pelvis), the hole number or diameter is provided to be varied. In this way the cushioning and deforming capability of the upper surface in contact with the user is further improved.

The above described cushioning elements however have some drawbacks or operating limits.

They are in particular mainly connected with the impossibility of the cushioning element density being differentiated along the element thickness, depending on the user's weight.

In fact, it is to be noted that due to the conformation of said holes, the density of the cushioning element cannot be varied in a discrete manner.

In particular, the hole conformation tapering away from the user's support surface, only enables the density of the cushioning element to be increased in an incremental manner as the weight increases.

Consequently, owing to the user's weight the cushioning element has a tendency to become hollow sometimes causing an excessive sinking of the user's body thereinto.

Under this situation, the user could find himself/herself in a non optimal condition.

SUMMARY OF THE INVENTION

Accordingly, the present invention aims at making a cushioning element for mattresses and pillows solving the above mentioned problem.

In particular, it is an aim of the present invention to make a cushioning element to be used in mattresses and pillows in which the density of the element itself is varied in a discrete manner along the thickness thereof.

In more detail, it is an aim of the present

invention to make available a cushioning element having differentiated density values so that it is adapted to any weight force applied by the user irrespective of the support region and the weight value.

It is another aim of the present invention to make a mattress and a pillow capable of solving the above mentioned problem.

The foregoing and still further aims that will become more apparent in the course of the following description are achieved by a cushioning element for mattresses, pillows and the like comprising the features set out in claim 1 and in the claims depending thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

Further features and advantages will be best understood from the detailed description of a preferred but not exclusive embodiment of a cushioning element for a mattress and a pillow in accordance with the present invention. This description will be set forth hereinafter with reference to the accompanying drawings, given by way of non-limiting example, in which:

- Fig. 1 is a perspective view of a cushioning element in accordance with a first embodiment of the invention:

- Fig. 2 is an elevation side view in section of the cushioning element shown in Fig. 1 in a use condition;

- Fig. 3 is a perspective view of a cushioning element in accordance with a second embodiment of the present invention;

- Fig. 4 is an elevation side view in section of the cushioning element shown in Fig. 3 in a use condition;

- Fig. 5 is a diagrammatic view of a construction detail of the cushioning element.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings, a cushioning element for mattresses, pillows and the like in accordance with the invention has been generally identified by reference

numeral 1.

Referring to Figs. 1 and 2 in which a first embodiment is shown, the cushioning element 1 has a main body 8 of substantially plate-like conformation having a rectangular perimeter extension.

Preferably, the cushioning element 1 is internally made of latex and has a horizontal support surface 2 designed to bear the body of a user A (see Fig. 2), and a base surface 3, opposite to the support surface 2 and designed to be associated with the frame 4 of a bed (diagrammatically shown in Fig. 2).

At least one primary hole 5 with a longitudinal extension consisting of at least two portions 5a, 5b consecutive to each other is formed in the support surface 2.

In more detail, still with reference to Fig. 2, element 1 has a plurality of primary holes 5 disposed on at least part of the support surface 2 and preferably along the whole support surface 2 itself.

It is to be pointed out that the number and arrangement of the primary holes 5 vary depending on the density that is wished to be given to the support surface 2 along the plane. For example, regions of the support surface 2 having a greater number of holes 5 may be provided, so that density on the surface 2 itself can be diversified.

In particular, each hole 5 (shown in detail in Fig. 5) that is advantageously blind, has at least three portions 5a, 5b, 5c consecutive to each other, each of them having a different cross-section width. Portions 5a, 5b, 5c are coaxial with each other and between one of said portions 5a, 5b, 5c and the respective adjacent portion a transition region 6 extends.

More particularly, portions 5a, 5b, 5c have a cylindrical conformation with a circular base and their cross-section width respectively decreases on moving away

from the support surface 2.

In other words, portion 5a that is close to the support surface 2 has a cross-section width greater than the median portion 5b that in turn has a greater size than the distal portion 5c, with respect to the support surface 2.

It is to be pointed out that the transition region 6 can be of a shape tapering away from the support surface 2, as shown in detail in Fig. 5, so as to define flared section variations.

Alternatively, the transition region 6 could consist of an indentation forming a right-angled edge defining a sudden section variation.

In addition, at the base surface 3 at least one secondary blind hole 7 is formed.

Advantageously, a plurality of secondary holes 7 may be provided that are at least partly formed on the base surface 3.

Each secondary hole 7 has a substantially frustoconical extension in longitudinal section, tapering away from the base surface 3.

Referring to Figs. 3 and 4 in which the second embodiment is shown, the cushioning element 1 has a prismatic conformation with a rectangular perimetral extension.

In more detail, the support surface 2 is at least partly rounded and designed to hold up the head of user A.

Advantageously, both the support surface 2 and base surface 3 are fully rounded or convex as better shown in Fig. 4.

It is to be pointed out that the support surface 2 may have several convex regions so as to show a predetermined undulation. This undulation varies depending on the physical features of user A and on the construction requirements (the shape of the anatomic

pillows presently on the market can be an example).

The support surface 2 too is at least partly provided with a plurality of primary holes 5 of the type described above in detail.

As shown in Fig. 4 by way of example only, the support surface 2 has a central region 2a in which said primary holes 5 are formed and a contour region 2b in which the secondary holes 7 are formed. In accordance with this embodiment, holes 7 have a constant and substantially cylindrical extension in longitudinal section.

Alternatively, the secondary holes 7 too may have a frustoconical extension as previously described.

The base surface 3 too is provided with said primary holes 5 at a central region 3a thereof and with the secondary holes 7 at a contour region.

The present invention also refers to a mattress of the type having a laminar conformation with a rectangular peripheral extension. Said mattress comprises the cushioning element 1 of the above described type.

Advantageously, as shown in Fig. 1, the mattress is fully made up of the cushioning element 1 (possibly with a cover thereon) in accordance with the first embodiment shown in Figs. 1 and 2.

In addition, the present invention also refers to a pillow 9 of a prismatic conformation with a rectangular peripheral extension. The pillow comprises the cushioning element 1 in accordance with the second embodiment described above.

Preferably, as shown in Figs. 3 and 4, pillow 9 is fully made up of the cushioning element 1 (possibly with a cover thereon).

Advantageously, the cushioning element 1 has a support surface 2 with a varying density based on user A's weight.

The cushioning element density results from the

particular conformation of the primary holes 5. In fact, portions 5a, 5b, 5c have different sections and therefore different resistance to pressure, so that, along their thickness, each portion is deformable depending on a preestablished pressure value.

In this way when a given pressure is applied to the support surface 2, the proximal portion 5a that is wider and therefore less resistant, undergoes a strong deformation along its longitudinal extension until region 6 separating portion 5a from the consecutive median portion 5b. Obviously the deformations to which the second portion 5b is submitted will be much smaller.

However, if a high pressure is exerted the median portion 5b too is fully deformed until region 6 separating said median portion 5b from the distal portion 5c.

Assuming that a very high pressure is exerted, the distal portion 5c too will be greatly deformed. In other words, three density levels are defined that correspond to portions 5a, 5b, 5c, each of them having a deformability value of its own.

For example, with reference to Fig. 2, the body parts of user A of greater weight appear to be supported by the median portion 5b or distal portion 5c, whereas the lighter body parts lie on a level close to the support surface 2.

Likewise, also in the case shown in Fig. 4, the head-rest areas that are of greater weight are held up by the support surface 2 at a distal level thereof whereas the lighter areas (such as the neck-supporting area) are held up by the support surface 2 at a level close thereto.

The present invention solves the drawbacks found in the known art and achieves the intended purposes.

In fact, the possibility of differentiating the density of the support surface 2 in a discrete manner (so

as to adapt it to the user's weight) allows a correct positioning of the user's body. It is to be pointed out that the body of user A does not sink into the cushioning element 1 in an undifferentiated manner, but it is supported by the different spring reactions of element 1 resulting from the different densities of the different regions.

Advantageously, the user's backbone is always maintained substantially horizontal, whereas the heavier parts such as the pelvis or shoulders of user A penetrate until close to the median portion 5b or distal portion 5c.

Likewise, in the embodiment of Fig. 4 too, the backbone's cervical vertebrae keep a correct position resting in alignment on the support surface 2.

Consequently the back of user A keeps a correct posture and the support surface 2 adjusts itself following the user's profile without yielding too much.

All of the details can be replaced by other technically equivalent elements and practically all materials herein employed, as well as the sizes can be of any nature and magnitude depending on requirements.